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RE: NLDC reporting for Wisconsin Department of Natural Resources, ACEI-158-15 Manitowish Waters Chain AIS Control and Prevention Project

Activities from September 1, 2016 through August 31, 2017

Overview:

The Town Aquatic Invasive Species Partnership (TAISP), founded in 2010, consists of the North Lakeland Discovery Center (NLDC), the Towns of Manitowish Waters, Boulder Junction, and Winchester, the Manitowish Waters Lake Association (MWLA), and the Winchester Town Lakes Committee. The TAISP works together to prevent the introduction of and minimize the spread of aquatic invasive species (AIS) in the Manitowish Waters area and its associated surrounding wetlands and riverways. The TAISP partners with Onterra, LLC to complete a phase-based management plan for the Manitowish Waters Chain of Lakes. Each phase covers 2-3 lakes within the Chain, where the lakes in current phases are studied extensively by the NLDC and Onterra. Results are compiled into individual management plans for each lake, and also contribute to a larger, overall management plan for the entire Chain. A large, underlying issue of each grant is also the control and treatment of curly-leaf pondweed, and aquatic invasive plant.

The Existing Population Control grant, more specifically, works to combat the effects of curly-leaf pondweed. It accounts for continuation of the control strategy for curly-leaf pondweed on the Chain, including herbicide treatment and hand removal of curly-leaf. It also has a goal of qualitative monitoring of AIS and native plant communities over the years in order to create an appropriate methodology of AIS treatment.

Each year NLDC monitors the Chain and associated inflowing/outflowing rivers with the goal of mapping current populations of AIS, and to look for any new infestations. Curly-leaf pondweed has been the main AIS of concern, but NLDC also treats and maps purple loosestrife infestations, and monitors for other AIS such as Eurasian-water milfoil, spiny water flea, rusty crayfish, mystery snails, and yellow iris. A timeline of significant curly leaf pondweed (CLP) detection and treatment events in the Manitowish Waters Chain of Lakes is as follows:

2010: CLP first detected on Island Lake and Rice Creek by NLDC volunteers and staff

2011: CLP detected in the Spider-Island Lake Channel, Rice Creek population mapped by NLDC and Vilas County staff, Onterra, LL surveyed Rice Creek, Island Lake, Spider Lake, Spider-Island Channel, and Spider Lake (>500 total acres of CLP)

2012: NLDC received grant funding for treatment and additional surveys, chemical treatment of Island Lake and the Spider-Island channel was unsuccessful due to use of low concentrations of endothall treatments, few plants found in Spider and Stone Lakes by NLDC staff and volunteers, NLDC hand pulled small areas of CLP

2013: Detected CLP in Manitowish Lake (few plants) and the Rest-Stone channel (3.9 acres total), received grant funding for treatment and surveys, chemical treatment of Island Lake and the Spider-Island channel successful with higher endothall concentrations, NLDC continued to hand pull small areas, NLDC increased education to include presentations to chambers, libraries, lake associations, clubs, and schools

2014: Received grant funding for surveys, chemical treatment, and professional hand harvesting, continued to hand pull small areas, continued community education

2015: Received grant funding for surveys, chemical treatment, and professional hand harvesting, continued to hand pull small areas, continued community education

2016: Received grant funding for surveys, chemical treatment, and professional hand harvesting, continued to hand pull small areas continued community education

2017: Received grant funding for surveys, professional hand harvesting, continued to hand pull small areas continued community education

Please see Onterra management plan reporting for details more specific to each year.

Onterra, LLC recommended against chemical treatments for 2017. After several years of chemical treatments, it was recommended to take an “observation” year to provide more insight into the turion seed bank. NLDC continued locally-based efforts, including AIS species monitoring through the “Captain and Deckhand” program and watercraft inspections. Please see Onterra reporting for a more detailed justification behind no chemical treatments in 2017.

Onterra provided more information regarding CLP treatment strategies at a planning meeting for the Manitowish Waters Lakes Association and stakeholders on Little Star and Manitowish Lakes on July 7, 2017. 11 people were in attendance. Tim Hoyman of Onterra updated attendees on the findings from 2016 studies (results found in Onterra reporting). He also reported on the seemingly diminishing populations of CLP, stating that chemical treatments and locally-based efforts appeared to be effective. Onterra recommends professional hand harvesting in future years, as well as continued partnership with NLDC and volunteers to monitor and hand harvest CLP.

NLDC used GPS data gathered in early-season 2017 AIS surveys to guide professional hand harvesters from Aquatic Plant Management (APM, Minocqua, WI) in hand harvesting areas of CLP. APM pulled CLP on Rest Lake and the Spider-Island Channel. They had originally planned to also pull CLP on Stone, but did not have time because the Stone-Island Channel population was larger than expected. Please see APM diving report for more information on hand harvesting.

NLDC Water Program Coordinator discovered a new CLP population on the southern end of Fawn Lake. NLDC interns hand pulled CLP on two areas of Fawn Lake, which took 2 people 8 hours for the lake, a total of 16 man-hours.

NLDC submitted and was provided an extension for this grant to 12/31/2018 in order to use remaining funds that were budgeted for chemical treatments for professional divers to hand harvest CLP.

Activities and deliverables

1. Pre-treatment surveys of CLP to determine if chemical or hand harvesting treatment is necessary, and if so, GPS data is used to guide chemical applications or hand harvesters
 - a. Onterra conducts early season AIS surveys each spring to guide chemical applicators or professional hand harvesters. Please reference Onterra reporting documents for more information regarding locations of treatments and effects of treatments. Reports also contain results of wild rice surveys on Island Lake and Rice Creek.
 - b. In 2017 we did not use chemical treatments. NLDC hired professional divers from Aquatic Plant Management in Minocqua, WI. Please see supporting document from Aquatic Plant Management for more information 2017 professional hand pulling.
2. NLDC monitors for AIS
 - a. NLDC Water Program Coordinator and Water Monitoring Interns monitor the entire Chain and incoming/outflowing rivers twice per year. The early season survey is primarily for CLP, the later season is primarily for purple loosestrife, but staff look for all invasive species while monitoring. NLDC Water Program Coordinator discovered CLP in a new location on the Chain in 2017 – Fawn Lake. This population was pulled by NLDC interns. NLDC staff also participated in a purple loosestrife biocontrol project, where they raise “cella beetles” that eat only purple loosestrife. This is a means to control large populations of purple loosestrife without the use of toxic chemicals. NLDC staff also clip purple loosestrife flower heads to slow the spread of seeds and new populations. The largest infestations of purple loosestrife in Manitowish Waters are Rice Creek, which flows into Island Lake, and the Manitowish River flowing into Island Lake. There are also smaller populations on the west side of Rest Lake, the Spider-Island Channel, the three Stepping Stone Lakes, the wetland on the western edge of Wild Rice Lake, and Vance Lake. Beetles were release on Rice Creek, the Manitowish River flowing into Island Lake, the wetland along the western edge of Rest Lake, and the Stepping Stones. Please see timeline of monitoring and intern events at the end of this report for more detailed information, noting that these monitoring events do not include time spent preparing for events (i.e. equipment preparation, intern hiring, data entry, miscellaneous paperwork).
3. Provide stakeholder meetings and updates
 - a. Please see attached document, “NLDC news release and newsletter articles_September 2016 to August 2017” for copies of news releases, newsletter articles, and social media postings regarding grant status and education.
 - b. Onterra held a planning meeting on July 7, 2017 to provide updates on Little Star and Manitowish Lakes management plans and results of 2016 field tests, as well as to provide CLP updates. 11 people attended.
4. Grants fund partial salary for NLDC employees
 - a. Administration: NLDC Executive Director
 - i. The NLDC Executive Director assists in the planning and management of grant and funding agreements; reviews and evaluates grants; assesses and approves contracts; attends meetings and communicated with the Board of Directors; determines payment arrangements; meets and coordinates with TAISP partners; completes payroll.
 - b. Bookkeeping: NLDC Office Manager/Accountant

- i. The NLDC Office Manager/Accountant prepares payments and funding agreements; pays bills; prepares financial reports; codes and copies receipts; prepares bank statements for reimbursement requests; tracks restricted fund accounts; prepares reports for Finance Committee meetings.
- c. NLDC AIS Coordinator
 - i. The AIS Coordinator develops and conducts outreach at community events, as well as formal classroom educational programs; identifies potential AIS samples collected by volunteers; recruits, trains, and compiles volunteer monitoring hours and equipment usage to ensure grant requirements are met; develops public outreach materials such as brochures, flyers, and backboards; monitors waters for AIS; trains and coordinates internship program; manages finances and administrative reporting for grants; attends partner and lake association meetings to provide updates; reviews project reports from contractors and communicates findings with partners; develops budgets and negotiates for town funding; reviews and develops bid requests for control activities; coordinates contractor work; applies for permits and ensures permit requirements are met; monitors herbicide sites.

Timeline of 2017 NLDC monitoring events:

- 5/22/17: Interns arrived
- 5/26/17: Interns trained in CBCW procedures by Vilas County Invasive Species Specialist
- 6/1/17: Two interns completed AIS meander surveys on Rest and Stone Lakes and the channel between the two lakes
- 6/15/17: Interns completed AIS meander survey on the Manitowish River from the Rest Lake Dam to the wayside on Hwy 51
- 6/16/17: Water Program Coordinator and intern completed AIS meander surveys on Fawn and Clear Lakes
- 6/21/17: Interns hand pulled CLP on Fawn Lake and hand-removed yellow iris on Clear Lake
- 6/27/17: Water Program Coordinator and interns completed AIS meander surveys on Manitowish and Little Star Lakes
- 6/28/17: Water Program Coordinator and Interns attended Plant Identification Workshop at Kemp Station on Lake Tomahawk
- 7/5/17: Water Program Coordinator and intern checked status of PL blooms on Wild Rice Lake
- 7/8/17: Interns completed AIS meander surveys on Alder and Wild Rice Lakes, and the Trout River
- 7/11/17: Water Program Coordinator and Interns monitored status of CLP on Rice Creek
- 7/20/17: Cella beetle release on Stepping Stone Lakes
- 7/29/17: PL flower head clipping on Stepping Stone Lakes
- 8/1/17: Cella beetle release on Wild Rice Lake
- 8/4/17: Water Program Coordinator and interns completed PL survey from below the Rest Lake Dam to the Hwy 51 wayside
- 8/8/17: Water Program Coordinator and interns released cella beetles on Vance Lake and completed a PL survey on Rice Creek
- 8/9/17: Interns completed PL surveys on Rest, Stone, Fawn, Clear, Little Star, Spider and Manitowish Lakes

- 8/10/17: Water Program Coordinator and interns completed PL survey on Island Lake
- 8/11/17: Water Program Coordinator and interns completed PL survey, flower head clipping, and release beetles on the Manitowish River from the Hwy H/K intersection to Island Lake
- 8/18/17: Water Program Coordinator and intern returned to Rice Creek to finish PL flower head clipping
- 8/23/17: Water Program Coordinator and interns completed PL surveys on the Trout River from Hwy H landing to Wild Rice Lake, clipped flower heads on Wild Rice Lake

Additional list of NLDC aquatic educational programs and events:

- 2/2/17: Loons: Learn about the natural history and adaptations of loons, including ecological and human impacts such as pollution and climate change
- 2/16/17: Nibbles n' Knowledge Secret Love Lives of Animals—including aquatic and AIS species
- 4/6/17-4/7/17: NLDC Water Program Coordinator attended Wisconsin Lakes Convention
- 5/10/17: North Lakeland Elementary School Purple Loosestrife Day
- 6/3/17: Presque Isle River Canoe Trip— A 4 mile canoe trip along the Presque Isle River to view wildlife and learn about river ecology, including AIS
- 6/9/17: Clean Boats, Clean Waters Training—Providing training to those who want to get involved with the CBCW program
- 6/9/17: Water booth at Celebrating Lake Day organized by the Vilas County Lakes and Rivers Association
- 6/9/17-6/11/17: NLDC Interns participated in the Drain Campaign during CBCW hours
- 6/11,18,25 7/2,9,16,23,30 8/6,13/17— Statehouse Canoe Paddle: Learn about the unique flora and fauna that inhabit Statehouse Lake
- 6/17/17: Water Program Coordinator attended Van Vliet Lake Association annual meeting
- 6/24, 7/17, 8/5/17: AIS Identification training
- 6/30/17: Manitowish River Canoe—Participants travel down the river while discussing river ecology
- 7/14/17: Mussel Program and Canoe Trip— Dive into the lives of fascinating mussels and learn to do a mussel survey on the Manitowish River
- 8/8/17: Eco-Discoverers (Ages 4-7) What's in the Water? — Explore Wisconsin's water and all the critters that live there
- 8/9/17: Eco-Explorers (Ages 7-10) Explore the Shore— Dig for critters, catch frogs, and have a rubber band boat race
- 8/12/17: Allequash Lake State Natural Area—An easy paddle to enjoy a beautiful lake

Reimbursement requests and rationale:

NLDC submitted a reimbursement request in September 2015 for the following expenses:

- Cost of chemical treatment from Clean Lakes Inc
- Cost of professional hand harvesters from Aquatic Plant Management
- NLDC Bookkeeper salary
- NLDC Executive Director salary

- NLDC AIS Coordinator salary

NLDC submitted a reimbursement request in September 2016 for the following expenses:

- Permit fees for chemical treatment
- Cost of chemical treatment from Clean Lakes Inc
- Cost of professional hand harvesters from Aquatic Plant Management
- Onterra consulting fees
- NLDC Bookkeeper salary
- NLDC AIS Coordinator

NLDC submitted a reimbursement request in September 2017 for the following expenses:

- NLDC AIS Coordinator salary
- NLDC Bookkeeper salary
- NLDC Executive Director salary
- Cost of professional hand harvesters from Aquatic Plant Management

List of duties for NLDC employees eligible for reimbursement:

AIS Coordinator: conducts and develops public outreach at community events; identifies samples collected by volunteers; recruits, trains, compiles, and tracks volunteer monitoring efforts; develops public outreach materials via social media and news releases; monitors area waters for AIS; grant management and accounting management; manages purple loosestrife bio-control and flower head clipping programs; reviews and develops bid requests for control activities; coordinates consultant work; applies for permits as necessary and ensures permit requirements are met; coordinates and oversees hand pulling efforts by volunteers; hires and oversees water monitoring interns

Bookkeeper: codes, copies, and files receipts for reimbursable expenses; tracks and pays bills; tracks bank statements for reimbursements; prepares financial statements for AIS Coordinators; tracks restricted funds; prepares reports for Finance Committee; assists in preparing reimbursement requests; prepares invoices for contracted services

Executive Director: attend Finance Committee meetings; communicates with Board and staff regarding water program, financial tracking, goals and more; fiscal year reporting and completion of NLDC budget; payroll; town communication; assists with intern training; attends update meetings